CLAIMS

What is claimed is:

1   1.   An apparatus comprising:
2   a frame module to process a frame containing information regarding a local
3   node in a first network, the information including discovery information and network
4   state information, the discovery information being represented in a common
5   description;
6   an information module coupled to the frame module to manage the information;
7   and
8   a communication module coupled to the frame module and the information
9   module to manage communication between the local node and a remote node in a
10   second network using the information.

1   2.   The apparatus of claim 1 wherein the frame module comprises:
2   a frame builder to build the frame containing the information;
3   a frame transmitter coupled to the frame builder to transmit the frame to another
4   local node in the first network or the remote node in the second network;
5   a frame poller coupled to the frame transmitter to provide a polling frame
6   requesting for information of the remote node; and
7   a frame receiver to receive another frame from another local node in the first
8   network or to receive a remote frame from the remote node.

1   3.   The apparatus of claim 2 wherein the frame receiver forwards the
2   received remote frame to the communication module if the received remote frame is
3   related to the network communication.

1   4.   The apparatus of claim 2 wherein the frame receiver forwards the
2   received remote frame to the information module of the local node, to another local
3   node in the first network, or to another remote node if the received remote frame is
4   related to information exchange and meets an acceptance condition.

1   5.   The apparatus of claim 4 wherein the acceptance condition is based on a
2   forwarding number and propagation parameters including a propagation list and a

3   propagation type, the forwarding number and the propagation type being contained in
4   the frame..

1   6.   The apparatus of claim 1 wherein the information module comprises:
2   a collector to collect the information;
3   a translator coupled to the collector to translate the discovery information into
4   the common description;
5   a node selector coupled to the collector to determine if the local node
6   participates in the communication based on the network state information of the local
7   node and other network state information from another local node in the first network;
8   and
9   a synchronizer to synchronize the collected information with other information.
10   from other local nodes in the first network.

1   7.   The apparatus of claim 6 wherein the information module further
2   comprises:
3   an information table to store entries regarding information extracted from a
4   received remote frame; and
5   an information table updater to update the entries.

1   8.   The apparatus of claim 1 wherein the communication module comprises:
2   a usage evaluator to evaluate network usage to determine relative location of the
3   second network based on an interference list from the network state information;
4   a channel migration evaluator to evaluate a channel allocation layout;
5   a channel change controller to control a channel change based in the channel
6   allocation layout; and
7   a channel changer to change channel of the local node according to a wireless
8   mode used by the node.

1   9.   The apparatus of claim 8 wherein the channel migration evaluator
2   evaluates an alternate layout based on a relationship between interference and channel
3   distance.

1   10.   The apparatus of claim 1 wherein the discovery information includes
2   information on at least node device, node service, and user.

1   11.   The apparatus of claim 1 wherein the network state information includes

2   at least one of network configuration, network status, network history, and an

3   interference list.

1   12.   The apparatus of claim 11 wherein the interference list includes at least a

2   network from which the local node receives a beacon or directly receives a remote

3   frame from the remote node.

1   13.   A method comprising:

2   processing a frame containing information regarding a local node in a first

3   network, the information including discovery information and network state

4   information, the discovery information being represented in a common description;

5   managing the information; and

6   managing communication between the local node and a remote node in a second

7   network using the information.

1   14.   The method of claim 13 wherein processing the frame comprises:

2   building the frame containing the information;

3   transmitting the frame to another local node in the first network or the remote

4   node in the second network;

5   providing a polling frame requesting for information of the remote node; and

6   receiving another frame from another local node in the first network or a remote

7   frame from the remote node.

1   15.   The method of claim 14 wherein receiving comprises forwarding the

2   received remote frame to the communication module if the received remote frame is

3   related to the network communication.

1   16.   The method of claim 14 wherein receiving comprises forwarding the

2   received remote frame to the information module of the local node, to another local

3   node in the first network, or to another remote node if the received remote frame is

4   related to information exchange and meets an acceptance condition.

1   17.   The method of claim 16 wherein the acceptance condition is based on a

2   forwarding number and propagation parameters including a propagation list and a

3   propagation type, the forwarding number and the propagation type being contained in
4   the frame..

1   18.   The method of claim 13 wherein managing the information comprises:
2   collecting the information;
3   translating the discovery information into the common description;
4   determining if the local node participates in the communication based on the
5   network state information of the local node and other network state information from
6   another local node in the first network; and
7   synchronizing the collected information with other information. from other local
8   nodes in the first network.

1   19.   The method of claim 18 wherein managing the information further
2   comprises:
3   storing entries regarding information extracted from a received remote frame;
4   and
5   updating the entries.

1   20.   The method of claim 13 wherein managing the communication
2   comprises:
3   evaluating network usage to determine relative location of the second network
4   based on an interference list from the network state information;
5   evaluating a channel allocation layout;
6   controlling a channel change based in the channel allocation layout; and
7   changing channel of the local node according to a wireless mode used by the
8   node.

1   21.   The method of claim 20 wherein evaluating a channel allocation layout
2   comprises evaluating an alternate layout based on a relationship between interference
3   and channel distance.

1   22.   The method of claim 13 wherein the discovery information includes
2   information on at least node device, node service, and user.

1   23.   The method of claim 13 wherein the network state information includes
2   at least one of network configuration, network status, network history, and an
3   interference list.

1   24.   The method of claim 23 wherein the interference list includes at least a
2   network from which the local node receives a beacon or directly receives a remote
3   frame from the remote node.

1   25.   An article of manufacture comprising:
2   a machine-accessible medium including data that, when accessed by a machine,
3   causes the machine to perform operations comprising:
4   processing a frame containing information regarding a local node in a first
5   network, the information including discovery information and network state
6   information, the discovery information being represented in a common description;
7   managing the information; and
8   managing communication between the local node and a remote node in a second
9   network using the information.

1   26.   The article of manufacture of claim 25 wherein the data causing the
2   machine to perform processing the frame comprises data that, when accessed by the
3   machine, causes the machine to perform operations comprising:
4   building the frame containing the information;
5   transmitting the frame to another local node in the first network or the remote
6   node in the second network;
7   providing a polling frame requesting for information of the remote node; and
8   receiving another frame from another local node in the first network or a remote
9   frame from the remote node.

1   27.   The article of manufacture of claim 26 wherein the data causing the
2   machine to perform receiving comprises data that, when accessed by the machine,
3   causes the machine to perform operations comprising forwarding the received remote
4   frame to the communication module if the received remote frame is related to the
5   network communication.

1　　　28.　　The article of manufacture of claim 26 wherein the data causing the

2　machine to perform receiving comprises data that, when accessed by the machine,

3　causes the machine to perform operations comprising forwarding the received remote

4　frame to the information module of the local node, to another local node in the first

5　network, or to another remote node if the received remote frame is related to

6　information exchange and meets an acceptance condition.

1　　　29.　　The article of manufacture of claim 28 wherein the acceptance condition

2　is based on a forwarding number and propagation parameters including a propagation

3　list and a propagation type, the forwarding number and the propagation type being

4　contained in the frame..

1　　　30.　　The article of manufacture of claim 25 wherein the data causing the

2　machine to perform managing the information comprises data that, when accessed by

3　the machine, causes the machine to perform operations comprising:

4　　　collecting the information;

5　　　translating the discovery information into the common description;

6　　　determining if the local node participates in the communication based on the

7　network state information of the local node and other network state information from

8　another local node in the first network; and

9　　　synchronizing the collected information with other information. from other local

10　nodes in the first network.

1　　　31.　　The article of manufacture of claim 30 wherein the data causing the

2　machine to perform managing the information further comprises data that, when

3　accessed by the machine, causes the machine to perform operations comprising:

4　　　storing entries regarding information extracted from a received remote frame;

5　and

6　　　updating the entries.

1　　　32.　　The article of manufacture of claim 25 wherein the data causing the

2　machine to perform managing the communication comprises data that, when accessed

3　by the machine, causes the machine to perform operations comprising:

4   evaluating network usage to determine relative location of the second network

5   based on an interference list from the network state information;

6   evaluating a channel allocation layout;

7   controlling a channel change based in the channel allocation layout; and

8   changing channel of the local node according to a wireless mode used by the

9   node.

1   33.   The article of manufacture of claim 32 wherein the data causing the

2   machine to perform evaluating a channel allocation layout comprises data that, when

3   accessed by the machine, causes the machine to perform operations comprising

4   evaluating an alternate layout based on a relationship between interference and channel

5   distance.

1   34.   The article of manufacture of claim 25 wherein the discovery

2   information includes information on at least node device, node service, and user.

1   35.   The article of manufacture of claim 25 wherein the network state

2   information includes at least one of network configuration, network status, network

3   history, and an interference list.

1   36.   The article of manufacture of claim 35 wherein the interference list

2   includes at least a network from which the local node receives a beacon or directly

3   receives a remote frame from the remote node.

1   37.   An apparatus comprising:

2   means for processing a frame containing information regarding a local node in a

3   first network, the information including discovery information and network state

4   information, the discovery information being represented in a common description;

5   means for managing the information; and

6   means for managing communication between the local node and a remote node

7   in a second network using the information.

1   38.   The apparatus of claim 37 wherein the means for processing the frame

2   comprises:

3   means for building the frame containing the information;

4   means for transmitting the frame to another local node in the first network or the

5   remote node in the second network;

6   means for providing a polling frame requesting for information of the remote

7   node; and

8   means for receiving another frame from another local node in the first network

9   or a remote frame from the remote node.

1   39.   The apparatus of claim 37 wherein the means for managing the

2   information comprises:

3   means for collecting the information;

4   means for translating the discovery information into the common description;

5   means for determining if the local node participates in the communication based

6   on the network state information of the local node and other network state information

7   from another local node in the first network; and

8   means for synchronizing the collected information with other information. from

9   other local nodes in the first network.

1   40.   The apparatus of claim 37 wherein the means for managing the

2   communication comprises:

3   means for evaluating network usage to determine relative location of the second

4   network based on an interference list from the network state information;

5   means for evaluating a channel allocation layout;

6   means for controlling a channel change based in the channel allocation layout;

7   and

8   means for changing channel of the local node according to a wireless mode used

9   by the node.